The Addiction Severity Index as a Screen for Trauma and Posttraumatic Stress Disorder*

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ABSTRACT. *Objective:* The Addiction Severity Index (ASI) includes items to assess patients' history of trauma (physical or sexual). The goal of this study was to assess the sensitivity and specificity of those questions in relation to the Trauma History Questionnaire (THQ), a more thorough measure of lifetime trauma and, in addition, to an actual posttraumatic stress disorder (PTSD) diagnosis. *Method:* At the start of treatment 110 cocaine dependent outpatients (N = 110, 65.5% male) were assessed on the ASI, the THQ and a PTSD symptom checklist as part of a multisite clinical trial. *Results:* Specificity of the ASI questions was higher than sensitivity for both sexual trauma (specificity = .96, sensitivity = .46) and physical trauma (specificity = .71, sensitivity = .50), while for PTSD the sensitivity of the ASI (.91) was higher than its specificity (.43). Other findings indicated that patients were more likely to report trauma on the THQ than on the ASI (which may be due to the self-report format of the THQ); that the ASI was better at assessing sexual than assessing physical trauma; and that the higher the number of ASI trauma items endorsed, the more likely was the PTSD diagnosis. Finally, PTSD patients had greater severity than non-PTSD patients on other ASI items (e.g., psychological severity, need for treatment). *Conclusions:* The ASI trauma questions show stronger utility as a screen for PTSD than for trauma. Results of the study are discussed in light of ways to modify the ASI to screen more accurately for trauma, clinical implications, and limitations of the study method. (*J. Stud. Alcohol* **59:** 56-62, 1998)

IN RECENT YEARS, studies have documented a high rate of co-occurring posttraumatic stress disorder (PTSD) in patients with substance use disorders (SUD). For example, PTSD has been estimated to occur in 59% of inner-city female drug users (Fullilove et al., 1993), 58% of male substance abuse inpatient veterans (Triffleman, 1993), 25% of inpatients in substance abuse treatment (Brown et al., 1995) and 20.5% of cocaine-dependent outpatients (Najavits et al., 1995). A history of trauma per se among patients with SUD is even more common, ranging from 55% to 99% (Fullilove et al., 1993; Grice et al., 1995; Miller et al., 1993; Najavits et al., 1995; Rounsaville et al., 1982; Yandow, 1989).

The association between PTSD and SUD is clinically significant not only because of its frequency, but also because patients presenting with these comorbid diagnoses are difficult to treat. Studies have shown them to be more impaired than patients with SUD alone on a wide range of psychological symptoms (Brady et al., 1994; Najavits et al., 1995) and various life problems such as inpatient admissions (Brown et al., 1995), homelessness (Paone et al., 1992; Smith et al., 1993) and loss of custody and maltreatment of their children (Famularo et al., 1992; Fullilove et al., 1992; Wallace, 1991). While in treatment, such patients are reported to be extremely challenging with unstable retention and alliance, and strong countertransference by therapists (Brady et al., 1994; Brown et al., 1995; Famularo et al., 1992; Fullilove et al., 1992; Najavits et al., 1995; Paone et al., 1992; Smith et al., 1993; Wallace, 1991). Clinical reports repeatedly emphasize the extreme challenges of their treatment relationships, with uneasy alliances and multiple crises (Brady et al., 1994; Fullilove et al., 1992; Root, 1989), and strong negative emotional responses by therapists (Brady et al., 1994; Nace et al., 1991; Root, 1989).

Given the special clinical problems posed by these patients and the fact that treatments are being developed and tested for this population (Abueg and Fairbank, 1991; Najavits et al., 1996), accurate screening for PTSD in SUD samples represents an important priority. However, in many SUD treatment settings, information about trauma is not attended to, and

clinical staff are reluctant to assess for PTSD (Bollerud, 1990; Fullilove et al., 1993; Yandow, 1989). The format and timing of assessments have been found to affect estimates of PTSD in SUD samples (Dansky, 1997, personal communication); and patients' shame and "numbing" concerning trauma may also hinder case identification (Brown et al., 1995).

The goal of this study was to assess whether a very widely used measure in SUD treatment settings, the Addiction Severity Index (ASI) (McLellan et al., 1992), could be helpful in assessing trauma and/or PTSD. The ASI was developed in 1980 to provide a standardized evaluation for patients entering substance abuse treatment. It measures the severity of drug and alcohol use and five related problem areas (family/social, legal, psychological, employment and medical) in a structured interview format. In the fifth edition of the instrument (McLellan et al., 1992), three questions pertaining to trauma were added to assess emotional, physical and sexual abuse over one's lifetime and also during the past month. No study has yet documented how well these questions correctly identify a trauma history or screen for a PTSD diagnosis.

The ASI could serve as an especially helpful screening tool because it is already so commonly used, including by staff without extensive training in psychopathology. Moreover, the measure shows strong psychometric properties (Kosten et al., 1983) and has been found to have some predictive utility as a predictor of treatment outcome and treatment matching (McLellan et al., 1985, 1992).

The National Institute on Drug Abuse Collaborative Cocaine Treatment Study (NCCTS) presents a particularly good opportunity to evaluate the use of the ASI for trauma and PTSD screening. It is a multisite clinical trial offering a large sample size, rigorous diagnosis of substance dependence, highly reliable ASI ratings and a relatively thorough assessment of trauma and PTSD conducted shortly after the ASI. The sociodemographic characteristics of the sample indicate a racially diverse mix, a relatively high percentage of women for a SUD sample, and a wide range of addiction severity and employment status. Details of the study design (Crits-Christoph et al., 1997) and previous findings with regard to PTSD in the sample (Najavits et al., 1995) are provided elsewhere. In this report, the authors analyzed three basic questions: (1) To what extent are traumas reported on the ASI consistent with reports of trauma on a more detailed measure (the Trauma History Questionnaire; Green, 1995)? (2) To what extent are traumas reported on the ASI associated with an actual PTSD diagnosis? (3) How do patients with and without PTSD differ on other relevant ASI variables (e.g., psychiatric severity, suicidal behaviors, etc.)?

Method

Data for this study were collected during the pilot phase of the National Institute on Drug Abuse Collaborative Cocaine Treatment Study (NCCTS), a randomized, controlled multicenter clinical trial conducted over a 6-month period to compare the efficacy of four psychosocial treatments for cocaine-dependent outpatients: individual cognitive therapy, individual supportive-expressive therapy, individual 12-step drug counseling (each in conjunction with group 12-step drug counseling) and group drug counseling alone. Patients in the individual treatments received 36 individual sessions and 32 group sessions; patients in group drug counseling alone received 32 group sessions; all sessions were 50 minutes long. The treatments were not tailored in any way for PTSD. During the pilot phase of the study, staff were trained and study protocols were developed.

Subjects

Subjects in the study were 110 adult outpatients, 65.5% were male, with a mean (±SD) age of 32.4 ± 6.2 years. Racial composition was 61.8% white, 32.7% black, 4.5% Hispanic and 0.9% other. The majority were single (54.7%), with 27.9% married or cohabitating and 17.4% separated or divorced. Slightly more than half of the subjects were employed (55.0%). All subjects met DSM-III-R criteria for current cocaine dependence according to the Structured Clinical Interview for DSM-III-R (SCID) (Spitzer et al., 1992). They reported using cocaine an average of 11.5 ± 8.3 days during the month prior to their entering treatment and spending an average of $1,479 ± $1,681 on cocaine during that month. All had volunteered for the study to obtain free treatment and gave written informed consent for participation. Subjects were excluded if they required psychopharmacological or psychosocial treatment outside of the study's protocol; had a history of bipolar disorder, schizophrenia or organic mental disorder; were mandated to attend treatment or were facing impending incarceration; were beyond the first trimester of pregnancy; were currently suicidal or homicidal; had a life-threatening or unstable illness; had been hospitalized more than 10 days in the past month for cocaine use; or were homeless without a long-term shelter. Patients with substance use disorders other than cocaine dependence were included in the study if cocaine was their primary drug of choice and if they did not meet DSM-III-R criteria for current opioid dependence. Substance use disorder diagnoses were assessed on the SCID by master's- or doctoral-level diagnosticians after a 1-4 week detoxification period in which patients were required to demonstrate abstinence from all substances in three consecutive urine samples (to ensure that diagnoses were not compromised by drug use). SCID diagnosticians were selected, trained and supervised by the Assessment Unit of the Center for Psychotherapy Research at the University of Pennsylvania.

Measures

The measures in the current study (part of the larger battery of the pilot phase of the NCCTS) were as follows:

The Addiction Severity Index, 5th edition (ASI) (McLellan et al., 1992), is a well-known structured interview designed

to assess the severity of drug and alcohol use and five related problem areas (family/social, legal, psychological, employment and medical). Scores on the ASI are composites (summarizing across the variables in each of the seven major problem areas), severity ratings by the interviewer, and individual items. Within the family/social section, emotional, physical and sexual abuse are assessed for lifetime incidence and also for the past 30 days; all are scored dichotomously (yes/no). The items (each rated separately, lifetime and past 30 days) were as follows: Did any of these people abuse you (1) emotionally (make you feel bad through harsh words)? (2) physically (cause you physical harm)? (3) sexually (force sexual advances or sexual acts)? "These people" refers to the immediately previous question on the ASI, which asks whether the patient had "serious problems getting along with mother, father, brothers/sisters, sexual partner/spouse, children, other significant family, neighbors, co-workers." The ASI was administered by research assistants, all of whom were certified on that measure by the coordinating center of the study. Interrater reliability on the measure by the 27 research assistants across all sites ranged from 86% to 92%, based on agreement with correct answers on a set of five tapes provided by the study diagnosticians.

The Trauma History Questionnaire (THQ) (Green, 1995) obtains a lifetime self-report history of traumatic incidents, within three categories: crime-related (e.g., robbery), general disaster and trauma (e.g., car accident) and unwanted physical and sexual experiences (e.g., rape). For each of 23 items, patients indicated lifetime occurrence, frequency, age of onset and type of relationship to the perpetrator. Psychometric data on the THQ show high test-retest reliability of items over a 2- to 3-month period; correlations on items ranged from .47 to 1.00, with a mean of .70 (Green, 1995).

The PTSD Checklist (PCL) (Weathers et al., 1993) assesses current PTSD symptoms. Patients rate the degree to which they have experienced each DSM-III-R symptom in the past month on a 5-point scale. In our study, the PCL was administered only to patients who reported at least one trauma on the THQ. Psychometric data on the PCL indicate high test-retest reliability over a 3-day period (.96), high internal consistency (.97), strong convergent validity with other PTSD assessments (Mississippi Scale, .93; PK scale of the MMPI-2, .77; Impact of Event Scale, .90; and Combat Exposure Scale, .46) and good diagnostic utility with the SCID (sensitivity = .82, specificity = .83, kappa = .64) (Weathers et al., 1993).

To obtain a DSM-III-R diagnosis of current PTSD for the purpose of this study, patients had to have at least one traumatic event on the THQ (to satisfy Criterion A of the DSM-III-R PTSD diagnosis) and to have a score of 3 or higher on the PCL items that represented Criteria B-D of the DSM-III-R PTSD diagnosis (specifically one in Criterion B "intrusive" symptoms, three in Criterion C "avoidance" symptoms and two in Criterion D "arousal" symptoms).

Sociodemographic information was obtained from a screening interview.

The ASI and sociodemographic information were completed during the initial screening/intake process. The THQ and PCL were completed 1 to 4 weeks later as part of a major assessment just prior to randomization to the study.

Analyses

Analyses were conducted for the sample of patients in the study who had completed all of the primary measures (THQ, PCL and ASI). Descriptive statistics were used to establish sociodemographic characteristics of the sample, as well as the overall prevalence of trauma and PTSD. The first study question (the association between the ASI and rates of trauma) was addressed by assessing sensitivity (i.e., "true positives," or positive cases identified on both the ASI and THQ in relation to total positive cases on the THQ) and specificity (i.e., "true negatives," or the ratio of negative cases identified on the ASI and THQ in relation to total negative cases on the THQ), including chi-square analysis, and by Pearson correlations. The second study question (the association between the ASI and rates of PTSD) was addressed by assessing sensitivity and specificity, including chi-square analysis, and by an exact Cochran-Mantel-Haenszel test of trend, two-tailed, to evaluate whether the presence of positive responses to one, two or three of the ASI trauma questions indicated an association with the PTSD diagnosis. The third study question (PTSD versus non-PTSD patients on other ASI variables) was addressed by t tests for all seven ASI composite scores and other selected relevant items.

Results

Mean ($\pm$SD) ASI composite scores for the entire sample were: alcohol, 0.22 ± 0.22; drug, 0.23 ± 0.07; employment/support, 0.49 ± 0.34; family/social, 0.28 ± 0.25; legal, 0.10 ± 0.19; medical, 0.17 ± 0.26; and psychological, 0.21 ± 0.23.

Prevalence of current PTSD diagnoses and lifetime trauma rates. Twenty-two patients (20%) in the sample had a current DSM-III-R diagnosis of PTSD (based on the THQ and PCL).[1] For the total sample, the mean number of lifetime traumas was 5.9 ± 3.9 out of the 23 listed on the THQ. By categories of traumatic events, the most frequent were general disaster and trauma (mean = 3.3 ± 2.4, out of a possible 13), followed by crime-related (mean = 1.3 ± 1.1, out of a possible 4) and physical/sexual (mean = 1.2 ± 1.4, out of a possible 6). The mean age of first reported trauma was 12.3 ± 8.3 years. Men had a significantly higher total number of traumas than women (6.6 for men vs 4.7 for women; $t = 2.47$, 108 df, $p < .016$), more crime-related traumas (1.5 vs 0.9; $t = 2.41$, 106.6 df[2], $p < .019$) and general disasters/traumas (4.0 vs 2.1; $t = 4.84$, 107 df, $p < .001$),

TABLE 1. Sensitivity and specificity of the ASI in assessing trauma

	ASI-Negative	ASI-Positive	Total (%)
Sexual abuse			
THQ-Negative	71	3	74 (67.9)
THQ-Positive	19	16	35 (32.1)
Total (%)	90 (82.6)	19 (17.4)	109 (100)

$\chi^2 = 28.7$, 1 df, $p < .001$. Sensitivity of the ASI = .46 (16/35); specificity of the ASI = .96 (71/74).

Physical abuse			
THQ-Negative	42	17	59 (54.1)
THQ-Positive	25	25	50 (45.9)
Total (%)	67 (61.5)	42 (38.5)	109 (100)

$\chi^2 = 5.13$, 1 df, $p < .03$. Sensitivity of the ASI = .50 (25/50); specificity of the ASI = .71 (42/59).

while women had significantly more physical/sexual traumas than men (1.7 vs 1.0; $t = -2.57$, 56.1 df, $p < .014$). Perpetrators of the physical abuse items were largely friend/family/partner (52.9%) of the victim, with fewer stranger/other (20.8%); 26.3% did not report a perpetrator. For sexual abuse items, 40.6% were family/friend/partner and 33.2% were stranger/other; 26.2% did not report a perpetrator.

The ASI in relation to trauma rates. Our primary purpose was to determine the sensitivity and specificity of the ASI in screening for a history of trauma. The results, reported in Table 1, indicate that, for both sexual and physical abuse, specificity (the percentage of "true negative" cases) was higher than sensitivity (the percentage of "true positive" cases). These data also reveal that patients were much more likely to report traumas on the THQ than on the ASI. That is, while 35 patients reported sexual abuse on the THQ, only 19 reported it on the ASI. Likewise, 50 patients reported physical abuse on the THQ, while only 42 reported it on the ASI. Emotional abuse could not be evaluated because only the ASI assessed that domain.

We then evaluated the correlation between the lifetime trauma items on the THQ and ASI. For sexual abuse, the correlation was moderately high between the ASI sexual abuse item and the mean of the three THQ sexual abuse items ($r = .57$, $p < .001$, $n = 109$). For physical abuse, the correlation was low but still significant between the ASI physical abuse item and the mean of the three THQ physical abuse items ($r = .28$, $p < .003$, $n = 109$).

The ASI in relation to PTSD rates. Even though the ASI was not designed to evaluate the diagnosis of PTSD, we evaluated its sensitivity and specificity because of the clinical importance of identifying that disorder in drug dependent populations. We found that 20 of the 22 patients with PTSD (as identified by the THQ and PCL) answered affirmatively to at least one of the ASI trauma questions, for a sensitivity of .91. Specificity was much lower (.43), however: of the 86 patients without a PTSD diagnosis, only 37 of these reported no trauma history on the ASI. Thus, for the diagnosis of PTSD, the sensitivity of the ASI trauma questions was higher

TABLE 2. PTSD diagnosis in relation to number of ASI abuse items endorsed

	PTSD ($n = 22$)	%	Non-PTSD ($n = 86$)	%
All 3 abuse types	7	31.8	5	5.8
2 Abuse types	8	36.4	23	26.7
1 Abuse type	5	22.7	23	26.7
No abuse	2	9.1	35	40.7
Totals	22	100.0	86	99.9

Note: Cochran-Mantel-Haenszel test significant at $p = .002$.

than their specificity, while (as described above) the specificity of these questions was higher than their sensitivity in screening for trauma per se.

In Table 2, results are shown for the association between a PTSD diagnosis and the number of abuse items on the ASI. These results suggest that reporting increasing numbers of different types of trauma on the ASI is associated with an accurate PTSD diagnosis, and reporting decreasing numbers is associated with an accurate non-PTSD diagnosis.

Other ASI results. PTSD patients were compared to non-PTSD patients on 12 other relevant ASI variables, using a Bonferroni correction ($p \le .0042$) to control for Type I error rate. On all significant comparisons, PTSD patients were more symptomatic than non-PTSD patients: need for psychological treatment (mean $= 3.19$ vs 1.16 out of a possible 4, $t = -5.28$, 106 df, $p < .001$), suicidal thoughts in the past 30 days (33.3% vs 4.5% of patients, $\chi^2 = 15.49$, 1 df, $p < .001$, $n = 109$), and composite scores for medical problems (mean $= .32$ vs .13 on a 0-1 scale, $t = -3.35$, 107 df, $p < .002$) and psychological problems (mean $= .41$ vs .17 on a 0-1 scale, $t = -4.93$, 106 df, $p < .001$). No significant differences were found for lifetime suicide attempts, suicide attempts in past 30 days, lifetime suicidal thoughts, or composite scores for alcohol, drug, employment, legal or family/social problems.

Discussion

In this study of cocaine dependent patients entering a comparative psychotherapy trial, we found that the physical and sexual trauma screening questions on the ASI did not serve as a particularly sensitive screen for a history of those types of trauma among the patient population as a whole, although it was quite specific. That is, approximately half of the patients who reported a lifetime history of either sexual or physical trauma on the THQ denied a history of these when asked about them on the ASI. Virtually of all the patients who reported trauma on the ASI, on the other hand, also reported trauma on the THQ. In contrast, the ASI trauma screening questions were quite sensitive in eliciting a trauma history among patients with a current clinical diagnosis of PTSD: 91% of patients with this disorder answered affirmatively to one or more of the ASI trauma questions. A positive

answer to these questions was not specific to patients with PTSD, however: only 43% of patients who answered "yes" to one or more of the trauma questions actually had a diagnosis of PTSD.

In evaluating a screening interview or questionnaire, one looks for an instrument that is brief, easily administered, inexpensive and sensitive (Weiss et al., 1989). The latter characteristic is more important in a screening instrument than specificity, since further evaluation of prescreened patients by a highly trained professional (or the addition of a more thorough self-report instrument) can provide diagnostic specificity. Thus, for example, a minimally trained staff member could conduct the ASI and then, if trauma is reported, a more thorough assessment could be conducted to ascertain whether current PTSD is present. The more thorough assessment might include a PTSD self-report instrument such as the PCL (used in this study) or the Modified PTSD Symptom Scale (MPSSR) (Falsetti et al., 1993), or an interview such as the SCID module for PTSD. Based on our data, it would appear that the ASI may be helpful as a "wide net" screen for current PTSD (as it was highly sensitive), following which a more rigorous diagnosis of PTSD would be needed (as it was not highly specific). As the ASI is frequently used in both clinical and research settings and can be administered by interviewers without advanced training in psychopathology, it offers a very practical method for initial screening. Our data would also suggest, however, that the ASI may not be useful as a screening device for lifetime trauma, as it was not highly sensitive and may thus obtain a high rate of false negative cases. This weakness in the ASI may not be terribly important from a clinical standpoint, as current PTSD is likely to be much more relevant for treatment planning and intervention than is lifetime trauma in the absence of current PTSD symptomatology.

The contrast between the utility of the ASI trauma questions in screening for a history of trauma and in obtaining a clinical diagnosis of PTSD is striking. Although the ASI questions may have "primed" some patients to remember traumatic events in the subsequent 1 to 4 weeks before the administration of the THQ, it is also possible that patients with PTSD are much more aware of their trauma histories, and are thus more likely to answer affirmatively whenever asked about this issue. Both Rounsaville and Kleber (1984) and Griffin et al. (1987) have pointed out that, in any single diagnostic or screening interview, a patient's perceptions of the past may be colored by current symptoms and level of functioning. Therefore, patients with current PTSD, who are, by definition, now suffering the consequences of past trauma, may be more likely to answer "yes" to a screening question about trauma than patients without current symptoms. However, the latter group of patients may recall a trauma history when probed by a more detailed trauma assessment instrument. The fact that the ASI is administered by an interviewer, in contrast to the self-report format of the THQ, may also affect response rates. Some patients may be

reluctant to tell another person about traumatic events in their lives, but may be willing to report them in a more anonymous and impersonal self-report. For patients with PTSD, however, either the level of disturbance may impel them to discuss their histories, or they may have already learned to do so in a previous treatment setting.

Several modifications of the ASI trauma questions might improve its utility. First, and most importantly, the ASI trauma questions relate only to family members, close friends, co-workers and neighbors. Expanding the questions to ask about anyone who has abused the patient (e.g., stranger rape) would promote greater convergence with actual PTSD rates found in the literature. In this study, for example, we found that 33% of sexual abuse and 21% of physical abuse were perpetrated by strangers. Adding the option to report traumas that are not interpersonal in nature, such as combat experience or natural disasters, would also help. Second, it is suggested that the ASI emotional abuse item be omitted. Such abuse, while certainly an important phenomenon, is not part of the DSM-IV definition of trauma for PTSD, and it is so broad and difficult to operationalize (particularly in a single-item format) that it is of doubtful value as a screening question. Finally, several of our staff who have conducted the ASI have reported that the placement of the three trauma questions, and the lack of any introduction to such potentially upsetting questions, may alter patients' responses. It is suggested, therefore, that the ASI trauma questions would follow more naturally after the family history section, as that section probes for pathology in family members, a logical link to abuse issues. A brief introductory statement would also be helpful. For example, the manual might instruct the interviewer to say, "The next set of questions I am going to ask you may be upsetting to some people as they inquire about very difficult life events. Please feel free to take your time in answering them, and let me know if you have any negative reactions to them." Such an introduction also allows for intervention if the trauma questions incur any negative reactions; although we have not yet encountered any such incidents, clinicians often report concerns about this.

Beyond the obvious value of routine screening for current situational danger, the presence of abuse questions in the ASI may alert the clinician to the need for a more comprehensive assessment to identify the subgroup of dually diagnosed patients with PTSD and substance abuse. These patients are known to be more impaired than patients with substance abuse alone on a wide range of psychological and functional variables (Brady et al., 1994; Najavits et al., 1995). Indeed, in this study as well, patients with PTSD were found to show greater severity than patients without PTSD on all ASI variables in which the two groups differed significantly (including need for treatment, recent suicidal thoughts, medical problems and psychological problems). The lack of specificity of the ASI as a screen for PTSD points to the need for comprehensive psychiatric assessment to complete a diagnostic evaluation.

Our results must be interpreted in light of several major limitations, however. The trauma/PTSD measures were self-report, and only current rather than lifetime PTSD diagnoses were assessed. The timing of the instruments may also have influenced the results. The ASI was administered at patients' intake, when they were likely to be most symptomatic and also may have been undergoing substance withdrawal or acute intoxication; in contrast, the trauma/PTSD measures were administered only after patients were able to provide three clean consecutive urine samples up to a month later. The lower rate of trauma reported on the ASI could thus be, at least in part, a function of patients' unwillingness to divulge such painful information at intake, particularly in the interview format of the ASI, to staff that they had just met for the first time. The study's exclusion criteria (e.g., patients who were suicidal, homicidal, homeless, unable to achieve three clean consecutive urine samples, and/or those who were receiving any other psychopharmacologic or psychosocial treatment) also restricted the sample to a relatively healthier level, thus likely limiting the rates of trauma and PTSD. If so, this would have lowered statistical power and, consequently, our ability to find meaningful relationships between the ASI and other measures of trauma/PTSD.

To the authors' knowledge, this is the first report of the ASI as a probe for trauma and PTSD in a drug dependent population. Our results suggest some interesting strengths and limitations of the ASI abuse questions, which, if replicated in future research, could reinforce its usefulness as an initial screen for this important patient population, and also suggest some changes to the instrument that would make it even more helpful. It would also be beneficial if future research were to evaluate the ASI trauma questions in other SUD samples and settings.

Acknowledgments

Notes

1. The data were also reanalyzed to adapt to DSM-IV PTSD criteria by reclassifying one criterion from category D to category B. All results reported in this paper were identical in this reanalysis, except that the number of patients meeting criteria for PTSD rose from 22 to 24 when DSM-IV was used. Further analyses all use the DSM-III-R sample as the PCL measure used in this study to obtain the PTSD diagnosis was developed for the DSM-III-R.
2. Degrees of freedom with decimals indicate that separate variance estimate was used.

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